

# ENVIRONMENTAL performance in 2015



UPM Caledonian



Through the renewing of the bio and forest industries, UPM is building a sustainable future across six business areas: UPM Biorefining, UPM Energy, UPM Raflatac, UPM Paper Asia, UPM Paper Europe and North America and UPM Plywood. Our products are made of renewable raw materials and are recyclable. We serve our customers worldwide. The group employs around 19,600 people and its annual sales are approximately EUR 10 billion. UPM shares are listed on NASDAQ OMX Helsinki. UPM – The Biofore Company – [www.upm.com](http://www.upm.com)

## UPM Caledonian

UPM's Caledonian mill is situated in Irvine on the West Coast of Scotland approx. 50 kilometres southwest of Glasgow. In production since April 1989 the Caledonian mill is capable of producing 280,000 tonnes of lightweight coated paper (LWC) for printing magazines, catalogues, brochures. The mill has a Biomass Combined Heat and Power (CHP) plant, a single paper machine line, a debarking plant, a pressurised groundwood (PGW) mechanical pulp mill and a primary effluent treatment plant. Effluent is then treated further in the neighbouring Municipal Waste Water Treatment Plant operated by Scottish Water.

Environmental issues are an integral part of everyday operations. Targets are set as part of our annual planning process with our key environmental aspects and impacts identified through our regulatory and business requirements to demonstrate continuous improvement. These are followed closely through the year. Our objective is to produce attractive and competitive paper with the lowest possible overall environmental impact. Through open communication we actively provide our customers, employees, environmental authorities, as well as our local community with information on environmental issues and knowledge of the mills operations.



UPM Caledonian Environmental Performance in 2015 is a supplement to the Corporate Environmental Statement of UPM's pulp and paper mills (available at [www.upm.com](http://www.upm.com)) and provides mill-specific environmental performance data and trends for the year 2015. The annually updated mill supplements and the UPM Corporate Environmental Statement together form the joint EMAS Statement of UPM Corporation. The next Corporate Environmental Statement and also this supplement will be published in 2017.

Production capacity	up to 280,000 tonnes of paper
Personnel	295
Products	Coated Magazine Papers: UPM Cote H (+NA) UPM Ultra H UPM Ultra Silk H UPM Cote Blueshade H
Certificates	EMAS – EU Eco-Management and Audit Scheme ISO 9001 – Quality Management System Standard ISO 14001 – Environmental Management System Standard OHSAS 18001 – Occupational Health and Safety System Standard PEFCT <sup>TM</sup> Chain of Custody – Programme for the Endorsement of Forest Certification FSC <sup>®</sup> Chain of Custody – Forest Stewardship Council <sup>®</sup>  <i>All certificates can be found from UPM's Certificate Finder (available at <a href="http://www.upm.com/responsibility">www.upm.com/responsibility</a>)</i>
Environmental labels	EU Ecolabel



The mark of responsible forestry

For FSC products, visit [www.fsc.org](http://www.fsc.org)



For PEFC products, visit [www.pefc.org](http://www.pefc.org)



EU Ecolabel : FI/011/001

# Environmental year 2015

This Report gives information on the Mill's environmental performance and covers the most significant environmental impacts – emissions to Air and Water; Waste and Material consumption.

UPM Caledonian operates within the boundaries of an Integrated Pollution Prevention and Control (PPC) Permit. The conditions of this permit are transposed from the European Industrial Emissions Directive with reference to the current Pulp and Paper BREF document. Our Annual Compliance assessment by the Scottish Environmental Protection Agency (SEPA) was judged to be 'Excellent' for 2015. This rating compares performance against Environmental Limit Conditions and Environmental Management Conditions which are detailed within the PPC Permit. There were no breaches reported to SEPA in 2015. Work was carried out during 2015 to consolidate the original permit and ten subsequent variations. A consolidated, simplified permit issued in December 2015.

## External Audits

During 2015 UPM Caledonian's already busy audit schedule saw two additions. The first of these was completed by IKEA as part of their IWAY code of conduct. This specifies the requirements that IKEA place on suppliers of products and services and details what they can expect in return from IKEA. After two days of auditing a number of minor issues were identified and action plans agreed with IKEA. These action were completed and the audit successfully signed off by IKEA in the autumn.

The second additional audit was in support of UPM Global Sustainability Index (GSI) rating and was carried out towards the end of the year. Again a number of minor areas for improvement were identified and with appropriate action in place

were closed off to the satisfaction of the auditing team from PricewaterhouseCoopers.

## Energy

Energy management continues to be a key area of focus for the site. During 2015 new legislation was introduced in the UK requiring companies such as UPM Caledonian as a subsidiary of UPM-Kymmene UK to participate in the Energy Savings Opportunity Scheme (ESOS). The legislation sets out details of Energy Efficiency Audits that must be completed to identify opportunities for Energy savings. Any opportunities identified along with proof of suitable audit are required to be submitted to the UK governments Department of Energy and Climate Change (DECC). During the course of the audit several areas of potential energy savings were identified which will be investigated further and included in Mill business plans over the next 4 year period. The ESOS audits will be repeated on a 4 year cycle with the next audit scheduled for 2019.

One of the key mill projects in support of improving UPM Caledonian's energy efficiency is the installation of a heat recovery system at the Off-Machine coater. This system will reuse the waste heat from the exhaust gas system which is currently discharged to air and will benefit the site in both energy and cost savings.

## Biofuels Sustainability

To ensure that the fuels used in the CHP plant are renewable and that the plant meets the requirements of good quality CHP the site must comply with a Fuel Measuring and Sampling plan (FMS) which is authorized by the government body OFGEM. In addition to this in 2015 DECC introduced a requirement to submit a biomass sustainability report which requires third party verification to ensure that all Biomass fuels used in the

CHP station meet the Woodfuel Advice Note (Issued by DECC: Department of Energy and Climate Change).

## UPM Clean Run

An excellent year with no clean run breaches or any external complaints received for the site

## Other Areas of Focus during 2015

As with most other UPM sites, UPM Caledonian is currently changing its management system platform. During 2015 the migration of our current Mill Management Systems away from Lotus Notes to a new Quality First/MS Sharepoint solution was started. This work should be completed during 2016.

In addition to the above project Caledonian has also been supporting the development of a new Global Safety and Environment Reporting tool for UPM. This is the 'One Safety project' which will again see a move away from Lotus Notes to a modern cloud base solution. Go live for the One Safety Tool is planned for April 1st 2016 with roll out and training taking place early in the year.



Gordon Mitchell, General Manager



# Air

2015 was a good year for air emissions with a reduction in both Sulphur Dioxide and Nitrous oxide emissions from the site, with no failures against the permitted ELV's (emission limit values).

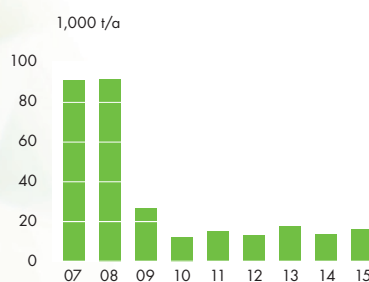
Particulate emissions from the CHP boiler were at a higher level than 2014, however there were several issues with the bag house filters during the year. These filters which are used to capture the particulates from the flue gases will undergo further maintenance and replacement in 2016.

The CHP boiler was offline for the month of June to allow for major refurbishment of the Boiler and the turbine this was based

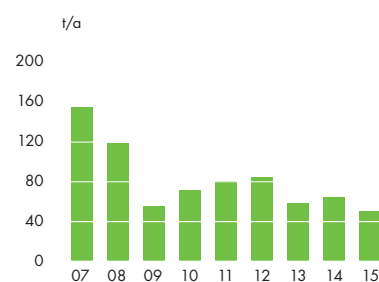
on operating hours since start up in 2009. As a consequence of the length of the planned shut the Auxiliary boiler (Gas fired) was required to operate for significantly more hours in 2015 than 2014. This resulted in a much higher consumption of natural gas to support Boiler operations during 2015 leading to a slight increase in fossil carbon dioxide emissions in 2015.

The continuous emissions monitoring (CEMS) was upgraded in 2015. This included changes in the Analysing equipment and the reporting package. The new software allows for a more in-depth analysis of key parameters to be performed.

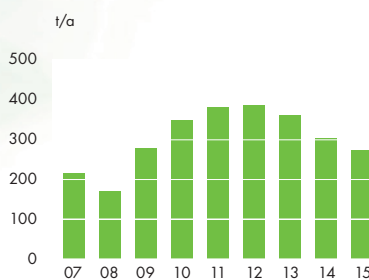
FOSSIL CARBON DIOXIDE, CO<sub>2</sub>



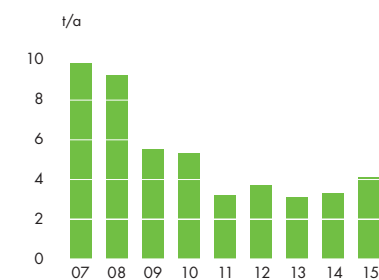
SULPHUR DIOXIDE, SO<sub>2</sub>



NITROGEN OXIDES, NO<sub>x</sub>



PARTICULATES



t/a refers to tonnes per annum

## Water and Effluent

Both fresh water usage and effluent volumes are of key focus in the papermaking process however with production process being shut along with the CHP boiler the total production output for site was reduced. This along with increased consumptions of fresh water and effluent discharged gave rise to increased specific water and effluent consumptions in comparison to 2014.

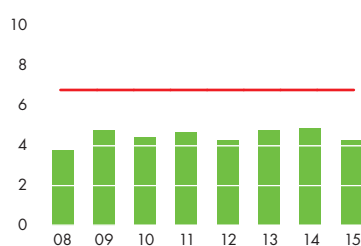
The operation of the effluent treatment plant was very good during 2015 with excellent performance achieved against our targets. We saw a reduction in average COD (chemical oxygen demand) and BOD<sub>5</sub> (biological oxygen demand) both were at good levels during the year

due to better control in key areas. The total tons of suspended solids discharged in the effluent stream increased in 2015 primarily as a consequence the increased effluent volume.

A project with a local University was undertaken with the aim of characterising the internal effluent streams in terms of COD loading. This project proved beneficial to both parties and has provided Caledonian with information on areas to focus on during further projects.

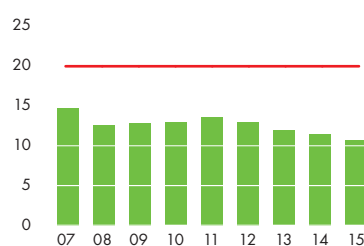
**BIOLOGICAL OXYGEN DEMAND, BOD<sub>5</sub>**

average tonnes/day



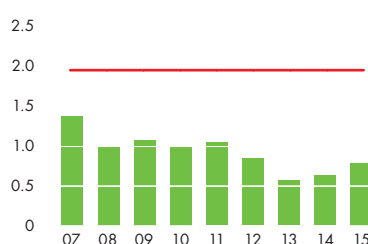
**CHEMICAL OXYGEN DEMAND, COD**

average tonnes/day

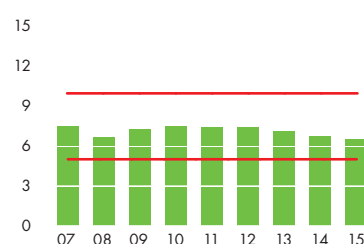


**TOTAL SUSPENDED SOLIDS, TSS**

average tonnes/day



**EFFLUENT PH**



— Limit value

— Upper and lower limit

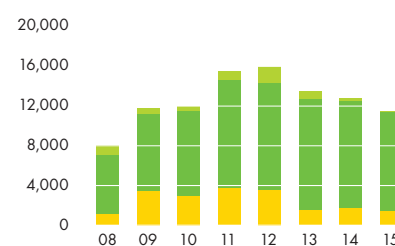
## Waste

By working closely with our waste contractor 2015 was the first year that Caledonian had zero waste to landfill. All waste is segregated onsite to ensure it can be reprocessed for reuse or recycling at the waste depot.

Combustion process residue waste which is produced during combustion in the CHP boiler is classified as hazardous waste however this is used in the consolidation of liquid hazardous wastes at the waste contractor's site to minimise the environmental impact.

**SOLID WASTE**

BDt/a



■ Landfill  
■ Ash  
■ Recovered/Recycled

All waste volumes based on dry tonnes



## Environmental parameters 2015

The figures related to production as well as raw material and energy consumption are published as aggregated figures on group level in the UPM Corporate Environmental Statement.

<b>Production capacity</b>	Paper LWC	280,000 t
<b>Raw materials (BDT)</b>	Pulp Pigments Process Chemicals	See UPM Corporate Environmental Statement for more information
<b>Energy</b>	Biogenic Fuels Fossil Fuels Electricity	See UPM Corporate Environmental Statement for more information
<b>Emissions to air</b>	Sulphur Dioxide, SO <sub>x</sub> Nitrogen Dioxide, NO <sub>x</sub> Carbon Dioxide (fossil) Carbon Dioxide (biogenic) Particulates	50 t 272 t 15,822 t 267,896 t 4 t
<b>Water intake</b>	Fresh Water	3,369,824 m <sup>3</sup>
<b>Discharges to water</b>	Chemical Oxygen Demand (COD) Total Suspended Solids Biological Oxygen Demand (BOD <sub>5</sub> ) Effluent Volume	3,871 t 286 t 1,547 t 2,928,331 m <sup>3</sup>
<b>Controlled waste*</b>	Landfill Materials Recycling Energy Recovery Composting Hazardous Waste	0 t 11104 t 231 t 9 t 37.58 t
<b>Size of mill area</b>		33.1 ha

\* Dry weight



The CHP plant which was commissioned in 2009 has had a major impact on fossil fuel emissions. The plant produces all of the mills heat requirements and a significant proportion of the mills electricity requirements.

# Performance against targets in 2015

TARGET	ACHIEVEMENT	COMMENTS
Clean Run Deviations – Zero category 3, 4 or 5 deviations	Yes	No deviations reported in 2015
Compliance with New Legislation : – Energy Savings Opportunity Scheme	Yes	– Very good audit carried out which identified several areas for energy savings
– Renewables Obligation : Sustainability Audit Report	Yes	– Audit carried out in Spring 2015 and submitted to authorities
Review of site emergency planning and preparedness	Yes	Complete review of the Business Continuity plan was carried out in April 2015
Pulp and Paper BAT Ref document to be reviewed	Yes	Gap analysis carried out with no significant changes required

## Environmental targets 2016

- Zero deviations against existing legislative requirements, including PPC permit and Scottish Water consent levels
- Gap analysis of the revised ISO 14001 with plan for compliance against new standard, including implementation of new management systems (Quality First and One Safety Tool)
- Mill wide cost savings with focus on energy and water reductions. Including successful implementation of coater gas re-use project.



### VERIFIER'S DECLARATION ON VERIFICATION AND VALIDATION ACTIVITIES

BSI, with EMAS verifier registration number UK-V-0002 accredited or licensed for the scope NACE 17 & NACE 16 declares to have verified whether the site(s) or the whole organisation as indicated in the environmental statement of the organisation UPM Caledonian with registration number FI-000058 meet all requirements of Regulation (EC) No 1221/2009 of the European Parliament and of the Council of 25 November 2009 on the voluntary participation by organisations in a Community eco-management and audit scheme (EMAS).

By signing this declaration, I declare that:

- the verification and validation has been carried out in full compliance with the requirements of this Regulation (EC) No 1221/2009,
- the outcome of the verification and validation confirms that there is no evidence of non-compliance with applicable legal requirements relating to the environment,
- the data and information of the environmental statement of the site reflect a reliable, credible and correct image of all the sites activities, within the scope mentioned in the environmental statement.

This document is not equivalent to EMAS registration. EMAS registration can only be granted by a Competent Body under Regulation (EC) No 1221/2009. This document shall not be used as a stand-alone piece of public communication.

Done at UPM Caledonian on 04/04/16

Richard Edmond  
BSI Environmental Specialist Client Manager  
Strategic Delivery UK  
EMAS Verifier Registration No. UK-V-002.

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